REMARKS

This paper is being provided in response to the Office Action mailed December 20, 2005, for the above-referenced application. In this response, Applicants have cancelled claims 2-4, 15-23, 28-37 and 41-43 without prejudice or disclaimer of the subject matter thereof and amended claims 1, 7 and 38 and added new claim 46 to clarify that which Applicants regard as the invention. Applicants submit that the amendments to the claims and the new claim are fully supported by the originally filed specification.

In response to the comments in the Office Action concerning the election of species, Applicants submit the following remarks and above-noted claim amendments concerning those claims that Applicants believe read on the elected Species V as illustrated in Figure 8 of the present application. The Office Action states that there is no illustrated support or description in relation to the species of Fig. 8 which sets forth that Species V comprises an adjustable diaphragm. Applicants traverse this conclusion and specifically direct attention to page 9, lines 11-12 and page 15, lines 21-29 of the present specification in which it is explicitly disclosed that Figure 8 shows a scanning electron microscope having a detector including a *diaphragm in the form of an opposing field grid* (see element 36). An opposing field grid is one type of adjustable diaphragm, as is explicitly described in the above-noted portions of the specification (see also page 7, lines 20-26). Further, Applicants have amended claims 1 and 38 herein to specifically recite the opposing field grid. Accordingly, in view of the above, Applicants submit that the claims presented herein (and as amended) read on the elected species and are entitled to examination, these claims being: 1, 5-14, 24-27, 38-40, 44, 45 and new claim 46.

The rejection of claims 38-40 and 44-45 under 35 U.S.C. 102(b) as being anticipated by U.S. Patent No. 4,933,552 to Lee (hereinafter "Lee") is hereby traversed and reconsideration is respectfully requested in view of the amendments to the claims contained herein.

Independent claim 38, as amended herein, recites a method of detecting electrons. An electron beam is generated. The electron beam is focused on an object. Electrons scattered on the object or emitted by the object are detected, wherein the selecting includes using an adjustable diaphragm, the diaphragm including at least one opposing field grid. Claims 39, 40 and 44-46 depend from independent claim 38.

The Lee reference discloses an inspection system utilizing retarding field back scattered electron collection. As shown in Fig. 2, Lee discloses an electron beam device including a electron beam column including grounded final stage lens assemblies 12, 14 and a sample 10 that is held at a high negative potential. A detector 16 is positioned around the electron beam column. Emitted electrons at the sample are accelerated toward the detector. Because the acceleration potential is relatively high, the low energy secondary electrons are strongly focused and are not detected by the detector, whereas the high energy backscattered electrons have a significantly larger transverse velocity component than the low energy secondary electrons and are thus collected by the detector. (See Fig. 2 and col. 4, line 61 – col. 5, line 5 of Lee.)

Applicants respectfully submit that Lee does not disclose selection of electrons according to electron energy using an opposing grid field so that electrons emitted by the object are not detected, as claimed by Applicants. Instead, Lee teaches the use of the acceleration potential.

As noted above, because the acceleration potential is relatively high, the low energy secondary electrons are strongly focused and would not be detected. (See column 4, lines 65-67 of Lee). That is, as shown in Figure 2 of Lee, Lee's device detects high energy backscattered electrons that have a sufficiently large transverse velocity component as to be collected by a detector 16 positioned around the lens stages 12, 14, whereas low energy secondary electrons are focused back up into the lens stages 12, 14 and thus go undetected. (See Fig. 2 and col. 4, line 68 to col. 5, line 5 of Lee). Applicants submit that Lee's electron detection system does not teach or fairly suggest Applicant's presently claimed invention that includes the detection of electrons with selection of electrons based on electron energy using an opposing field grid. Accordingly, in view of the above, Applicants respectfully request that this rejection be reconsidered and withdrawn.

Further, as noted above, Applicant submits that claims 1, 5-14 and 24-27, as amended herein, read on the elected species and are entitled to examination. With respect to claim 1 (claims 5-14 and 24-27 depending therefrom), Applicants direct attention to the remarks made above concerning amended claim 38 in view of the Lee reference and respectfully submit that Lee does not teach or fairly suggest at least the features of an electron beam device having at least one opposing field grid allocated to at least one detector, wherein a voltage is applied to the opposing field grid such that the electrons emitted by the object are not detected by the at least one detector, as claimed by Applicant in independent claim 1. Accordingly, Applicant submits that these claims are patentable over the cited prior art.

Based on the above, Applicants respectfully request that the Examiner reconsider and withdraw all outstanding rejections and objections. Favorable consideration and allowance are earnestly solicited. Should there be any questions after reviewing this paper, the Examiner is invited to contact the undersigned at 508-898-8603.

Respectfully submitted,
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